

Application/Control Number: 09/770,858

Docket No.: 113351A

AMENDMENT**In the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-49 (Canceled).

50. (Currently Amended) The A system according to claim 49 for code division packet switching at a destination access radio port of a terrestrial wireless network, where said destination access radio port interfaces with a plurality of destination mobile subscriber terminals located within a microport cell of said terrestrial wireless network, further comprising:

means for transmitting a paging message to one of said plurality of destination mobile subscriber terminals over a paging channel indicating that there is payload data for said one of said plurality of destination mobile subscriber terminals;

means for receiving an acknowledgement from said one of said plurality of destination mobile subscriber terminals;

means for spreading said payload data extracted from an ATM packet with a uniquely assigned orthogonal code;

means for transmitting said spread payload data to said one of said plurality of destination mobile subscriber terminals;

means for waiting for a time-out period for a negative acknowledgement; and

means for releasing said uniquely assigned orthogonal code if no negative acknowledgement is received within said timeout period.

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51-67 (Canceled).

68. (Currently Amended) The A system according to claim 67 for code division packet switching at an originating mobile subscriber terminal, said originating mobile subscriber terminal being located within a microport cell of a terrestrial wireless network at a given instant of time, where said network interfaces with an originating access radio port comprising:

means for spreading a preamble by a PN-code assigned to an access radio port;

means for inserting an identifier of a few bits for identifying a user;

means for modulating said PN-code spread transmission signal;

means for forwarding said modulated PN-code spread transmission signal and marking a time origin of said forwarding of said modulated PN-code spread transmission signal;

means for receiving an acknowledgement, within a time-out period, from said originating access port, said acknowledgement comprising an assignment of an orthogonal code to said originating mobile subscriber terminal and a timing adjustment;

means for spreading a payload data signal by said assigned orthogonal code;

means for spreading the orthogonal spread payload data signal by the PN-code thereby associating the user with payload data;

means for modulating said twice spread payload data signal;

means for adjusting a transmission time by said timing adjustment received from said originating access radio port; and

means for forwarding said modulated twice-spread payload data signal to said originating access radio port, wherein said first spreading means and said second spreading means are accomplished using a spreader comprising:

a first multiplier used to spread said payload data by said assigned orthogonal code;

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a second multiplier used to spread said preamble, said header and said payload data by said PN-code; and

a switch used to alternate between said first multiplier and said second multiplier thereby spreading said preamble and said header by said PN-code only and spreading said payload data by both said assigned orthogonal code and said PN-code.

69 (Cancelled).

70. (Currently Amended) The A system according to claim 69 for code division packet switching used for interfacing a terrestrial wireless network with a packet-switched network, where said wireless network interfaces with a plurality of access radio ports, each of said access radio ports interfacing to a plurality of mobile subscriber terminals, comprising:

means for spreading, by said originating mobile subscriber terminal, a preamble and a header signal by a PN-code assigned to an intended receiving port;

means for inserting, by said originating mobile subscriber terminal, an identifier of a few bits for identifying a user;

means for modulating, by said originating mobile subscriber terminal, said PN-code spread transmission signal;

means for forwarding, by said originating mobile subscriber terminals, said modulating PN-code spread transmission signal and marking a time origin of said forwarding;

means for demodulating, by said originating access radio port, said modulated PN-code spread transmission signal;

means for acquiring, by said originating access radio port, a preamble from said transmitted signal;

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means for forwarding, by said originating access radio port, an acknowledgment to one of said plurality of said originating mobile subscriber terminals, said acknowledgment comprising an assignment of an orthogonal code to said one of said plurality of originating mobile subscriber terminals and a timing adjustment;

means for receiving, by said originating mobile subscriber terminal, said acknowledgment, within a time-out period, from said originating access radio port;

means for spreading, by said originating mobile subscriber terminal, a payload data signal by said assigned orthogonal code;

means for spreading, by said originating mobile subscriber terminal, the orthogonal spread payload data signal by the PN-code associating the user with payload data;

means for modulating, by said originating mobile subscriber terminal, said twice spread payload data signal;

means for adjusting, by said originating mobile subscriber terminal, a transmission time by said timing adjustment received from said originating access radio port;

means for forwarding, by said originating mobile subscriber terminal, said modulated twice spread payload data signal to said originating access radio port;

means for receiving, by said originating access radio port, a further transmission signal comprising payload data;

means for disspreading, by said originating access radio port, said further transmission signal by both said assigned orthogonal code and said PN-code;

means for monitoring, by a destination mobile subscriber terminal, a paging channel for paging messages indicating that there is payload data for said destination mobile subscriber terminal;

means for receiving, by said destination radio access port, said packet switch transmission signal from an access node via a network;

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means for assigning, by said destination access radio port, a unique orthogonal code to one of said plurality of said destination mobile subscriber terminals;

means for spreading, by said destination access radio port, payload data destined for said one of said plurality of destination mobile subscriber terminals using both said uniquely assigned orthogonal code and a PN-code;

means for transmitting, by a destination access radio port, a paging message to said one of said plurality of said destination mobile subscriber terminals over said paging channel indicating that there is payload data for said one of said plurality of destination mobile subscriber terminals;

means for receiving, by said destination mobile subscriber terminal, said paging message via said paging channel;

means for transmitting, by said destination mobile subscriber terminal, an acknowledgment to said destination access radio port;

means for receiving, by said destination access radio port, said acknowledgment from said one of said plurality of destination mobile subscriber terminals;

means for spreading, by said destination access radio port, said payload data extracted from an ATM packet with a uniquely assigned orthogonal code and with said PN-code;

means for modulating, by said destination access radio port, said twice-spread payload data;

means for transmitting, by said destination access radio port, said twice-spread payload data over air to one of said plurality of destination mobile subscriber terminals;

means for receiving, by said destination mobile subscriber terminals, said twice-spread payload data;

means for despreading, by said destination mobile subscriber terminal, said payload data using uniquely assigned orthogonal code and said PN-code; and

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means for decoding, by said destination mobile subscriber terminal, said despread payload data, wherein:

said first spreading means and said second spreading means are accomplished using a spreader comprising:

a first multiplier used to spread said payload data by said assigned orthogonal code;
a second multiplier used to spread said preamble, said header and said payload data by said PN-code; and

a switch used to alternate between said first multiplier and said second multiplier thereby spreading said preamble and said header by said PN-code only and spreading said payload data by both said assigned orthogonal code and said PN-code.

71. (Previously Presented) A code division switching system used for interfacing a terrestrial wireless network with a core network, where said wireless network interfaces with a plurality of wireless terminal users, comprising:

means for spreading a transmission signal by a PN-code assigned to an intended receiving port;

means for inserting an identifier of a few bits for identifying a user;

means for spreading payload data by an orthogonal code;

means for spreading the orthogonal spread payload data signal by the PN-code identifying the user with payload data;

means for forwarding, at the originating terminal, said PN-code spreading transmission signal and said twice spread payload data signal to an access radio port;

means for despreading, at an originating access radio port, the transmission signal by orthogonal code assignments to recover microport groupings and route said microport groupings accordingly;

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means for translating, at the originating access radio port, the orthogonal code assignments to a packet address identifying a destination microport augmented to identify a destination access node;

means for downconverting, at the originating access radio port, to an intermediate frequency;

means for depositing, at the originating access radio port, said despread transmission signal into a packet with said packet address;

means for transmitting, from the originating access radio port, said packet to an originating access node for further transmission over a network;

means for receiving, at a destination access radio port, said packet switched transmission signal from a destination access node via a core network;

means for translating a packet address into an orthogonal code sequence;

means for respreading said orthogonal code sequence into a transmission signal at an intermediate frequency;

means for upconverting said resspread transmission signal; and

means for transmitting said resspread upconverted transmission signal over the air to a destination terminal user.

72. (Currently Amended) A code division switching system used for interfacing a terrestrial wireless network with a core network, where said wireless network interfaces with a plurality of wireless terminal users, comprising ~~the steps of:~~:

means for spreading a transmission signal by a PN-code assigned to an intended receiving port;

means for inserting an identifier of a few bits for identifying a user;

means for spreading payload data by an orthogonal code;

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means for spreading the orthogonal spread payload data by signal by the PN-code identifying the user with payload data;

means for forwarding, at the originating terminal, said PN-code spread transmission signal and said twice spread payload data signal to an access radio port;

means for despread, at an originating access radio port, the transmission signal by orthogonal code assignments to recover microport groupings and route said microport groupings accordingly;

means for directing the transmission signal within the same access node according to the orthogonal code assignments;

means for downconverting, at the originating access radio port, to an intermediate frequency;

means for depositing, at the originating access radio port, said despread transmission signal into a packet with said packet address;

means for transmitting, from the originating access radio port, said packet to an originating access node for further transmission over a core network;

means for receiving, at a destination access radio port, said packet switched transmission signal from a destination access node via a core network;

means for translating a packet address into an orthogonal code sequence;

means for respreading said orthogonal code sequence into a transmission signal at an intermediate frequency;

means for upconverting said resspread transmission signal; and

means for transmitting said resspread upconverted transmission signal over the air to a destination terminal user.

73. (Canceled).

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74. (New) A system for code division packet switching at a destination access radio port of a wireless network, where the destination access radio port interfaces with a plurality of computing devices located within a cell of the wireless network, the system comprising:

a module configured to transmit a message to a particular computing device of the plurality of computing devices over a communication channel indicating that there is payload data for the particular computing device;

a module configured to receive an acknowledgement from the particular computing device;

a module configured to spread the payload data extracted from an ATM packet with a uniquely assigned orthogonal code;

a module configured to transmit the spread payload data to the particular computing device;

a module configured to wait for a time-out period for a negative acknowledgement; and

a module configured to release the uniquely assigned orthogonal code if no negative acknowledgement is received within the timeout period.